East San Pedro Bay Ecosystem Restoration Feasibility Study

Long Beach, CA

Community Update

26 October 2016

CITY OF LONG BEACH

U.S.ARMY

US Army Corps of Engineers

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Presentation Outline

I. Study Overview
- Study Authority, Federal Interest, Study Timeline, Study Area, Existing Habitat Types

II. Planning Foundations
- USACE Planning Process, Problems & Opportunities, Habitat Loss, Goal & Objective, Future Without Project Conditions

III. Plan Formulation Update
- Constraints & Considerations, Public Meeting, Stakeholder Workshop, Management Measures, Screening Criteria, Opportunity Zones, Measures By Zones

IV. Next Steps

STUDY OVERVIEW

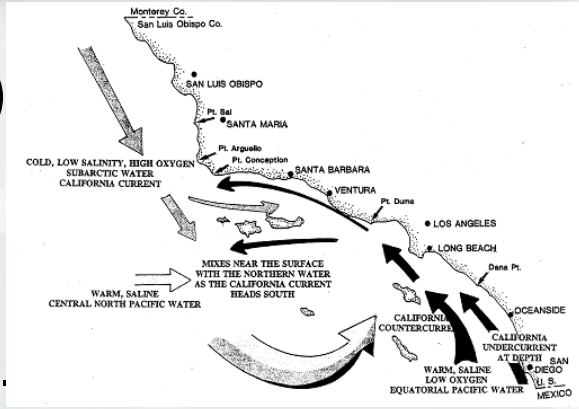
Study Authority

Senate Resolution, approved 25 June 1969, reading in part:

"Resolved by the Committee on Public Works of the United States Senate, that the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby requested to review the report of the Chief of Engineers on the Los Angeles and San Gabriel Rivers and Ballona Creek, California, published as House Document Numbered 838, Seventy-sixth Congress, and other pertinent reports, with a view to determining whether any modifications contained herein are advisable at the present time, in the resources in the Los Angeles County Drainage Area."

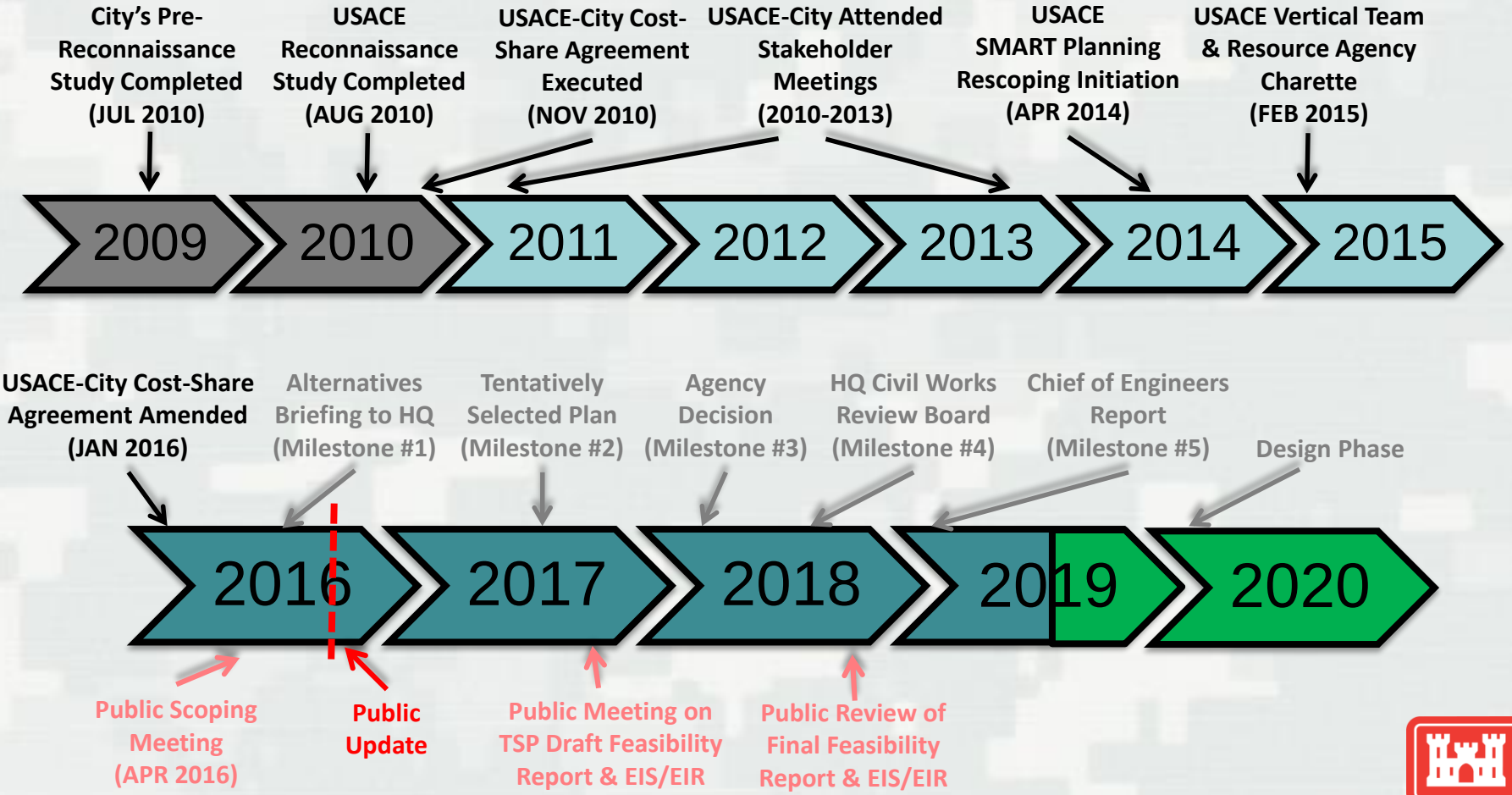
- FY2010 funding were provided for the Long Beach Breakwater (East San Pedro Bay) Reconnaissance Study
- 905(b) Report, certified August 2010, determined that the study should proceed into the cost-shared feasibility phase to evaluate opportunities for ecosystem restoration and related incidental recreation within East San Pedro Bay off the coast of Long Beach, CA.

Federal Interest



- Study Area within the Southern California Bight (SCB)
  - Rare Mediterranean climate zone – covers 2% of earth
  - Warm – cold water Pacific Ocean transition zone
- Technical Recognition
  - Biodiversity (SCB) – 481 fish sp., 195 bird sp., 7 pinniped sp.
  - Status/Trends (SCB) – 80% loss of estuarine habitat - biomass decline
  - Habitat Scarcity/Rarity (SPB) – 100% loss of estuarine habitat
  - Connectivity (SPB) – coastal wetland complex system
  - Hydrology/Geomorphic (SPB) – altered sediment transport & littoral sand movement
  - Special Status Species (ESPB) – 7 birds, green sea turtle, migratory species
- Institutional & Public Recognition
  - Federal Acts: Migratory Bird Treaty, CWA, Magnuson-Stevens (essential fish habitat), ESA, Marine Mammal Protection Act
  - Robust stakeholder engagement: >220 participants (Public Scoping Mtgs, Stakeholder Workshop); Ports & Habitat Evaluation TAC Working Groups

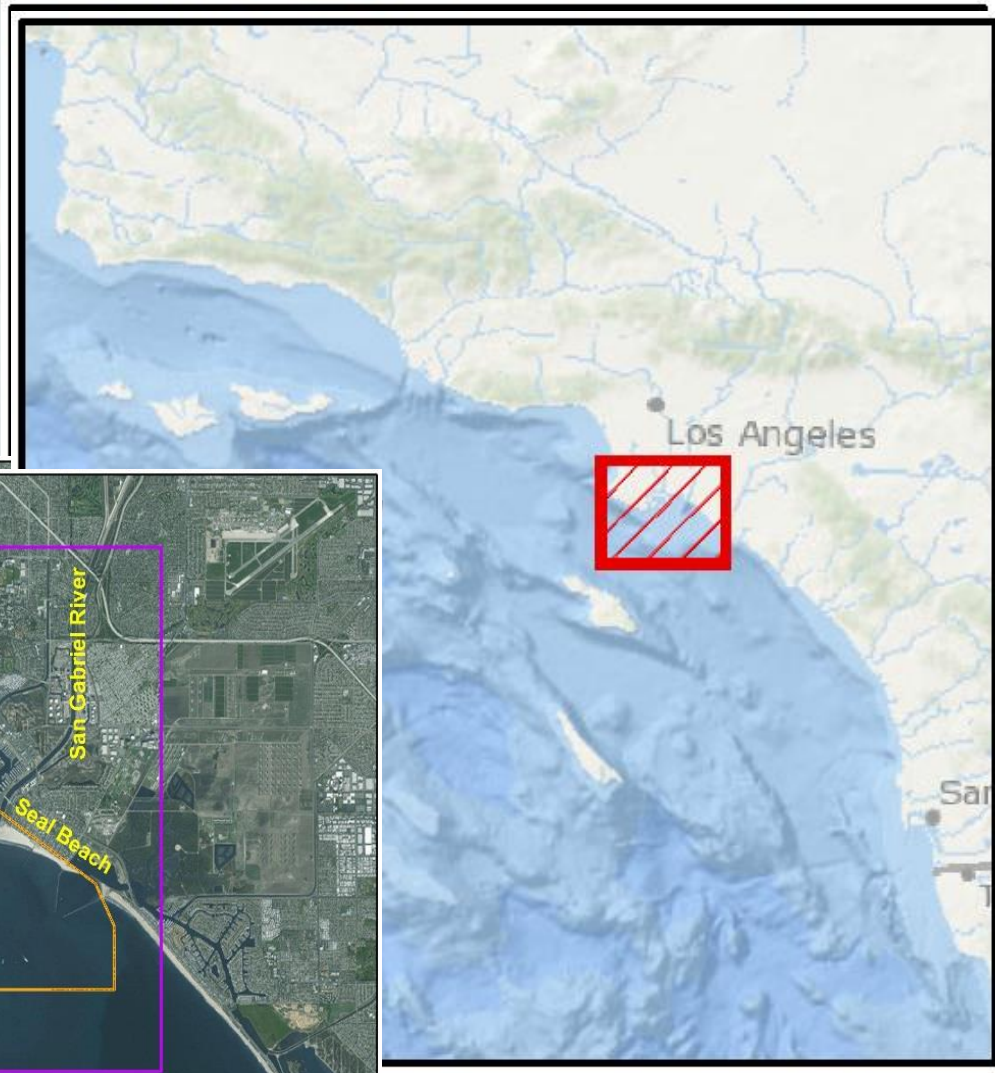
Study Timeline

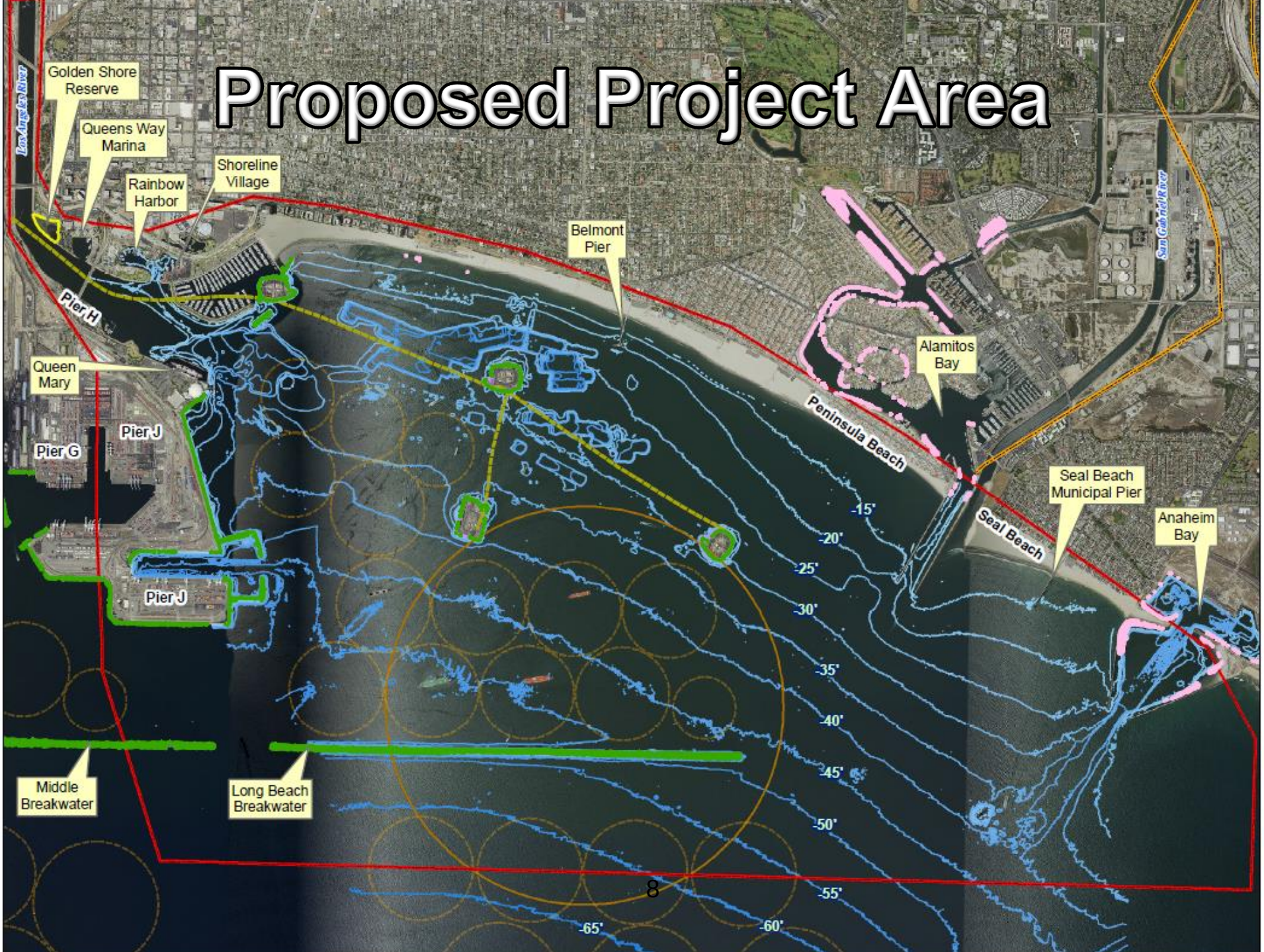


Study Area

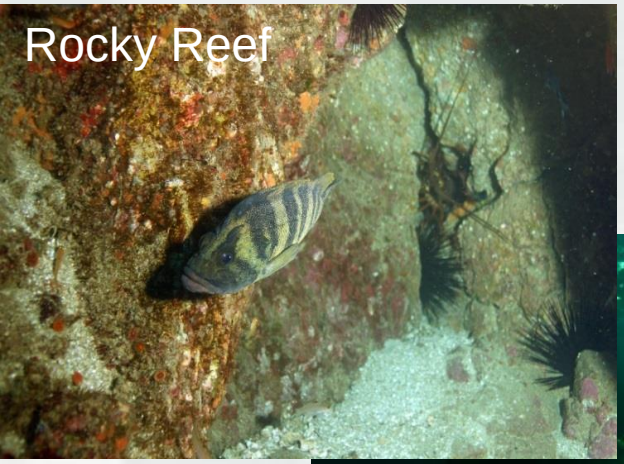
Southern California Bight,
Santa Barbara to Mexico Border

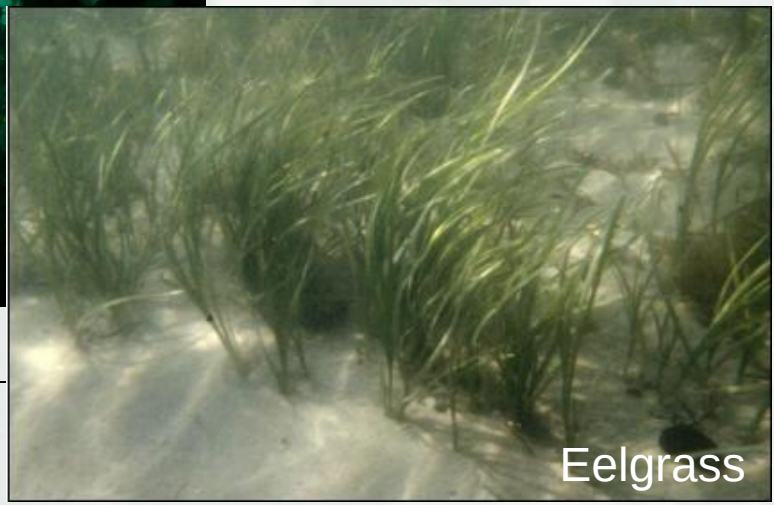
Study Area (in purple box)




Proposed Project Area
Golden Shore Reserve
Queens Way Marina
Rainbow Harbor
Shoreline Village
Belmont Pier
Pier H
Queen Mary
Pier J
Pier G
Pier J
Alamitos Bay
Peninsula Beach
Seal Beach Municipal Pier
Seal Beach
Anaheim Bay
-15'
-20'
-25'
-30'
-35'
-40'
-45'
-50'
-55'
-60'
-65'
Middle Breakwater
Long Beach Breakwater

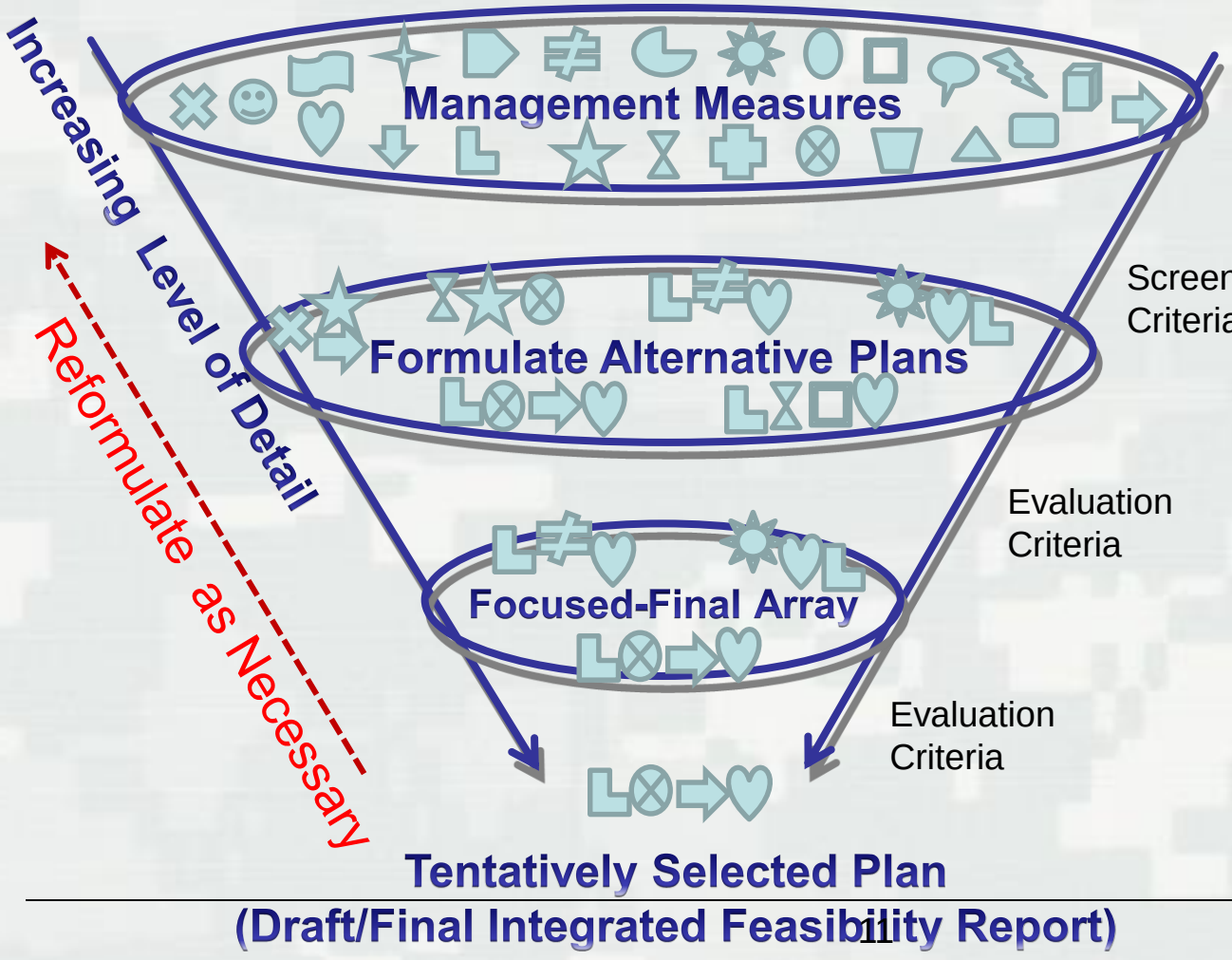
Existing Conditions
Habitat Types





PLANNING FOUNDATIONS

USACE Planning Process



Step 1: Specify Problems and Opportunities

Step 2: Inventory and Forecast

Step 3: Formulate Alternative Plans

Step 4: Evaluate Alternative Plans

Step 5: Compare Alternative Plans

Step 6: Plan Selection

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Problems & Opportunities

Key Problems

1. Loss of historic coastal wetlands and sensitive marine habitat areas (rocky reef, kelp, eelgrass) with associated nursery, reproductive and other ecological functions
2. Reduced abundance and biodiversity of marine populations due to habitat loss
3. Degraded physical and chemical conditions including poor circulation, contaminated water and sediments, and poor water clarity
4. Reduced recreational opportunities and value for water-based recreational activities due to real and perceived water quality issues.

Key Opportunities

A. Restore habitat types lost or degraded e.g., rocky reef, kelp, eelgrass (P1, P2)

B. Sandy islands support eelgrass & shorebirds (P1, P2)

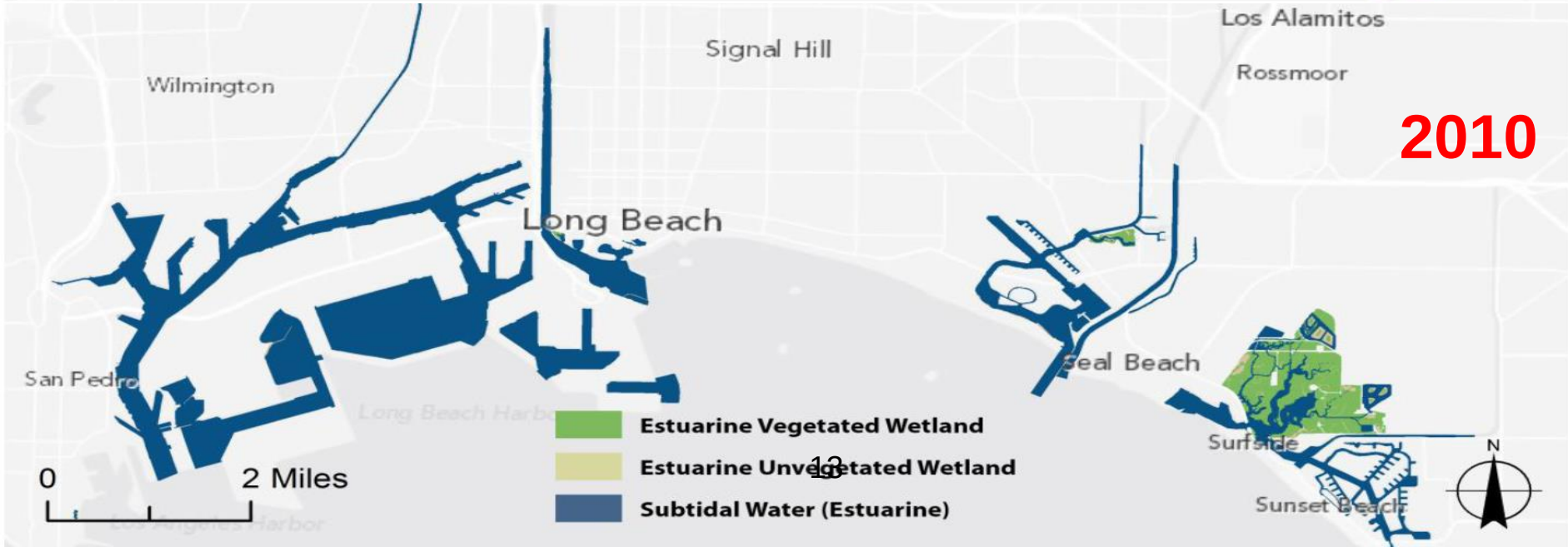
C. Restore coastal wetlands near LA River mouth (P1, P2)

D. Increase tidal circulation and wave-induced mixing of harbor waters & freshwater flows (P3)

E. Enhanced public education, recreational opportunities and values as an incidental benefit from ecosystem restoration measures (P4)

Coastal Wetland Loss

Historic and Current Estuarine Habitat (Source: Wetlands of the Southern California Coast, Southern California Coastal Water Research Project)



Kelp Bed Loss

Study Goal & Objective

Goal

Restore and improve aquatic ecosystem structure and function for increased habitat biodiversity and ecosystem value of the southern California bight within the proposed project area of East San Pedro Bay (ESPB).

Objective

Restore aquatic habitat such as kelp, rocky reef, coastal wetlands and other types historically present in San Pedro Bay of sufficient quality and quantity to support diverse resident and migratory species within ESPB during the period of analysis.

Future Without Project Conditions

- Degradation of rare marine habitats with associated continued decline in marine biodiversity and populations would continue in the southern California bight.
- Impairment of water circulation and wave induced mixing will continue to concentrate pollutants and reduce water clarity within the bay, resulting in deleterious effects on sensitive ecosystem functions.
- Reduced wave energy will continue to limit certain recreational activities along the beach shoreline including surfing and swimming.

PLAN FORMULATION UPDATE

Constraints and Considerations

- Do not reduce maritime operational capacity for the port, the U.S. Navy, THUMS energy islands.
- Minimize impacts to known major utilities or navigation channels and anchorages.
- Avoid increases in shoreline erosion, wave related damages, and coastal flooding to existing residences, public infrastructure, marinas, existing jetties, other structures, and recreational beaches.
- Minimize impact to flood risk management operations on LA River.
- Minimize vulnerability of coastal areas to accelerating sea level rise.

Public Meeting
April 7, 2016

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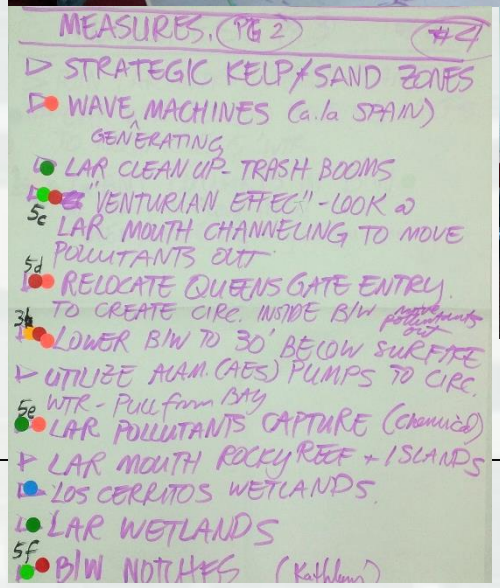
Stakeholder Workshop
April 18, 2016

- 75 participants (residents, advocacy, ports, subject matter experts, resource agencies, etc.)
- 8 'Teams' Brainstormed:
  - What Success Looks Like
  - Problems, Opportunities, Objectives, Constraints
  - Measures to restore habitat & improve circulation
- Outcomes:
  - >130 Restoration Measures
  - Spatial layout of opportunities, constraints & measures
  - Confirmation of prior public input



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Compiled Measure Categories (Pre-Screening)

- Rocky Reef habitat (subtidal)
- Nearshore intertidal zone rocky/ sandy habitat
- Create sandy-bottom eelgrass habitat
- Beds for oysters & other filter feeders
- Sandy bottom restoration
- Kelp habitat atop rocky reef
- Modify or lower breakwater
- Beach sand management
- Sandy/rocky island bird habitat
- Estuary or other coastal wetland
- Reconfigure breakwater (change footprint)
- Underwater contouring cut/fill
- Los Angeles River training wall
- Alamitos Bay jetty modification
- Mechanical water circulation
- Alamitos Bay circulation improvements
- Wave generation
- Clean polluted LA River runoff
- Natural bubbles from artesian water table
- General habitat improvement
- Major infrastructure modifications (not breakwater)
- Recreation measures
- Navigation measures
- Public health
- Coastal protection from storm damage, sea level rise, etc.
- Redirect or reconfigure Los Angeles River before ESPB mouth
- Restore coastal wetland at Alamitos Bay, San Gabriel River or Los Cerritos Wetlands
- Water quality treatment plant
- Stock fish/marine species

USACE Screening Criteria

EFFECTIVENESS Metrics (33%)

- How strongly does the measure support meeting the study Goal and Objectives?
- Does the measure make a significant contribution to solving the Problems?

EFFICIENCY Metrics (33%)

- Is this a cost-effective measure?
- Is there a cheaper way to accomplish the same planning objectives?
- Are resources used efficiently in the construction of this measure?
- Are the outputs produced by the measure produced in an efficient manner?

ACCEPTABILITY Metrics (33%)

- **Implementability** - Is it feasible in the technical, environmental, economic, social, and similar senses?
- **Satisfaction** - Does it bring satisfaction to the sponsor, stakeholders & USACE?

Final List of Measures

1. Rocky Reef habitat (subtidal)
2. Nearshore intertidal zone rocky/ sandy habitat
3. Create sandy-bottom eelgrass habitat
4. Beds for oysters & other filter feeders
5. Sandy bottom restoration
6. Kelp habitat atop rocky reef
7. Modify or lower breakwater
8. Beach sand management
9. Sandy/rocky island bird habitat
10. Estuary or other coastal wetland
11. Underwater contouring cut/fill
12. Los Angeles River training wall


Opportunity Zones
Los Angeles River
Queens Way Marina
Rainbow Harbor
Shoreline Village
Belmont Pier
San Gabriel River
3. LA River Mouth
Queen Mary
Pier J
Pier G
1. Nearshore
Alamitos Bay
2. Open Water
Seal Beach Municipal Pier
Seal Beach
Anaheim Bay
-15'
-20'
-25'
-30'
-35'
-40'
-45'
-50'
-55'
4. Port
5. Breakwater
Middle Breakwater
Long Beach Breakwater

Management Measures By Zone (Example Draft)

ZONE / MEASURE	1. Nearshore	2. Open Water	3. LA River Mouth	4. Port	5. Breakwater
Giant Kelp Forest		X			X
Eelgrass Beds	X		X	X	
Rocky Reef	X	X	X	X	X
Sandy/Rocky Shoals	X				
Sandy Island	X		X		
Oyster Beds	X		X	X	
Sandy Bottom	X	X			
Coastal Wetlands			X	X	
Training Wall			X	X	
Breakwater Modifications					X
Underwater Contouring		X	X	X	
Beach sand management	X				

Next Steps

- Formulate the Draft Alternative Plans for use in Modeling
- Conduct Wave and Water Circulation Modeling
- Develop and Run Habitat Evaluation Model
- Run Cost-Effectiveness/Incremental Cost Analysis (CEICA)
- Identify Final Array of Alternatives from “Best Buy Plans”
- Identify Tentatively Selected Plan (TSP)
- Public Review of Draft Integrated Feasibility Report/EIS-EIR

26 October 2016

East San Pedro Bay Ecosystem Restoration Feasibility Study

End of Presentation

THANK YOU!

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